

**Swampscott Contributory Retirement System**

*Actuarial Valuation and Review  
as of January 1, 2004*

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*December 7, 2004*

*Retirement Board  
Swampscott Contributory Retirement System  
25 Railroad Avenue, Suite 4C  
Swampscott, MA 01907*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of January 1, 2004. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2005 and later years and analyzes the preceding two years' experience.*

*The census information and financial information on which our calculations were based was prepared by the Swampscott Contributory Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.*

*This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*

*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*THE SEGAL COMPANY*

*By:*

*Kathleen A. Riley, FSA, MAAA, EA  
Senior Vice President and Actuary*

*244866/04293.001*

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## SECTION 1: Valuation Summary for the Swampscott Contributory Retirement System

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### Purpose

This report has been prepared by The Segal Company to present a valuation of the Swampscott Contributory Retirement System as of January 1, 2004. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2004;
- The assets of the Plan as of December 31, 2003;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

### Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2004 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected.
- During the plan years ended 2002 and 2003, the market value of return was (6.73)% and 14.97%, respectively. Because the actuarial value of assets gradually recognizes market value fluctuations, the actuarial rate of return for the plan years ended 2002 and 2003 was (3.03)% and 5.50%, respectively. The actuarial value of assets as of December 31, 2003 was \$28.7 million, or 110.7% of the market value of assets.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2003 is \$2.8 million. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return of 8.00% per year (net of expenses) on a **market value** basis will result in investment losses on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed 8.00% rate and all other actuarial assumptions are met, the contribution requirements would still increase in each of the next few years.

## SECTION 1: Valuation Summary for the Swampscott Contributory Retirement System

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- The unfunded liability has increased from \$18.4 million as of January 1, 2002 to \$24.1 million as of January 1, 2004. The unfunded liability was expected to increase to \$19.0 million. The additional increase is due to an investment loss of \$4.2 million and the additional liability of \$1.5 million associated with the 2002 and 2003 ERIs, partially offset by demographic gains.
- The preliminary recommended contribution for fiscal 2005 of \$2,420,098 amortizes the 2002 ERI in level payments over 15 years and the remaining unfunded liability over 24 years in increasing (4.50% per year) payments. The first payment on the 2003 ERI is in fiscal 2006. Under this schedule, the System will be fully funded as of June 30, 2028. The fiscal 2005 appropriation has been set to the previously budgeted amount of \$2,347,756. Therefore, the impact of this valuation will first be reflected in the fiscal 2006 appropriation of \$2,561,571.

The prior funding schedule fully funded the System by June 30, 2026.

- Based on September 30, 2004 payroll data, the 2006 appropriation is allocated as follows:

	<b>Percent of Payroll</b>	<b>Appropriation (excluding ERIs)</b>	<b>2002 ERI</b>	<b>2003 ERI</b>	<b>Total</b>
Town	94.92%	\$2,268,566	\$126,396	\$40,333	\$2,435,295
Water	1.91%	45,649	--	--	45,649
Sewer	2.20%	52,580	--	--	52,580
Housing Authority	<u>0.97%</u>	<u>23,182</u>	<u>4,865</u>	--	<u>28,047</u>
	100.00%	\$2,389,977	\$131,261	\$40,333	\$2,561,571

## SECTION 1: Valuation Summary for the Swampscott Contributory Retirement System

### Summary of Key Valuation Results

	2004	2002
<b>Contributions for fiscal year beginning July 1:</b>		
Recommended for 2004 and 2002	\$2,347,756	\$2,022,976
Recommended for 2005 and 2003	2,561,571	2,117,905
Recommended for 2006 and 2004	2,669,120	2,347,756
<b>Funding elements for plan year beginning January 1:</b>		
Normal cost, including administrative expenses	\$1,637,589	\$1,519,316
Market value of assets	25,948,723	25,559,927
Actuarial value of assets	28,721,832	29,429,260
Actuarial accrued liability	52,826,739	47,842,001
Unfunded actuarial accrued liability	24,104,907	18,412,741
<b>GASB 25/27:</b>		
Annual required contributions	\$2,347,756	\$2,022,976
Actual contributions	--	2,022,976
Percentage contributed	--	100.00%
Funded ratio	54.37%	61.51%
<b>Demographic data for plan year beginning January 1:</b>		
Number of retired participants and beneficiaries	229	211
Number of inactive participants	206	172
Number of active participants	263	267
Total payroll	\$8,587,764	\$7,924,442
Average payroll	32,653	29,680

## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

### A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

*A historical perspective of how the participant population has changed over the past six valuations can be seen in this chart.*

#### CHART 1

##### Participant Population: 1993 – 2003

Year Ended December 31	Active Participants	Inactive Participants*	Retired Participants and Beneficiaries
1993	254	N/A	199
1995	269	3	198
1997	260	123	212
1999	277	1	207
2001	267	172	211
2003	263	206	229

*\*Excludes inactive participants due a refund of employee contributions in 1995 and 1999.*

## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

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### Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 263 active participants with an average age of 43.1, average years of service of 9.2 years and average payroll of \$32,653. The 267 active participants in the prior valuation had an average age of 45.1, average service of 11.0 years and average payroll of \$29,680.

Among the active participants, there were none with unknown age and/or service information.

### Inactive Participants

In this year's valuation, there were 206 participants with a vested right to a deferred or immediate vested benefit or to a return of their employee contributions.

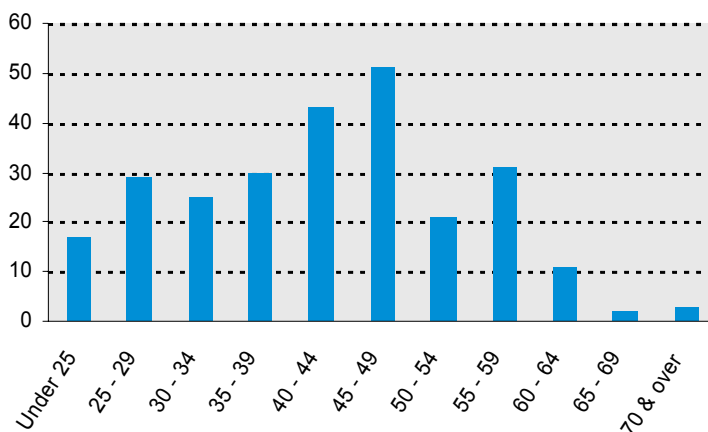
*These graphs show a distribution of active participants by age and by years of service.*

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**CHART 2**

**Distribution of Active Participants by Age as of December 31, 2003**

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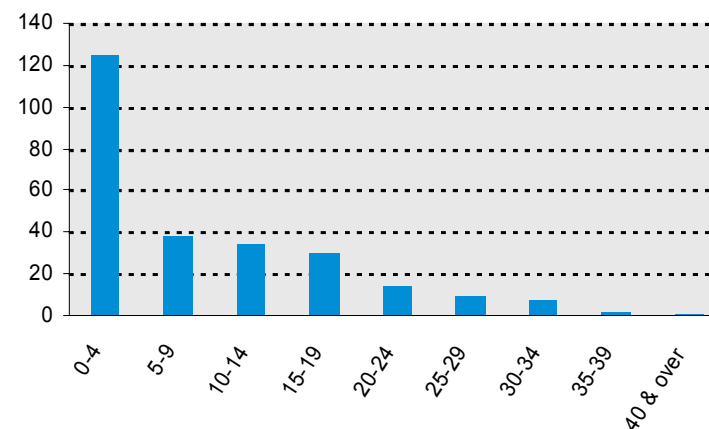


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**CHART 3**

**Distribution of Active Participants by Years of Service as of December 31, 2003**

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## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

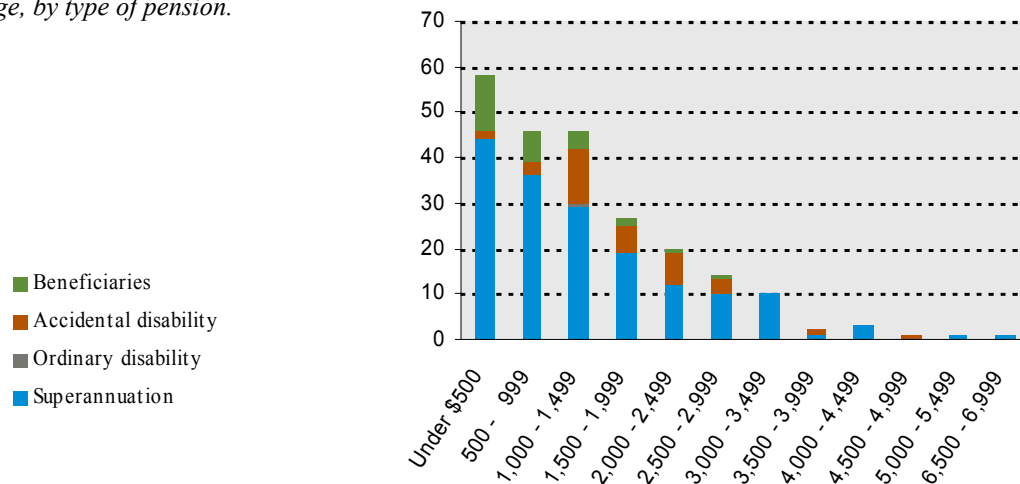
### Retired Participants and Beneficiaries

As of December 31, 2003, 202 retired participants and 27 beneficiaries were receiving total monthly benefits of \$302,522, excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 178 retired participants and 33 beneficiaries receiving monthly benefits of \$230,705, excluding COLAs reimbursed by the Commonwealth.

*These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.*

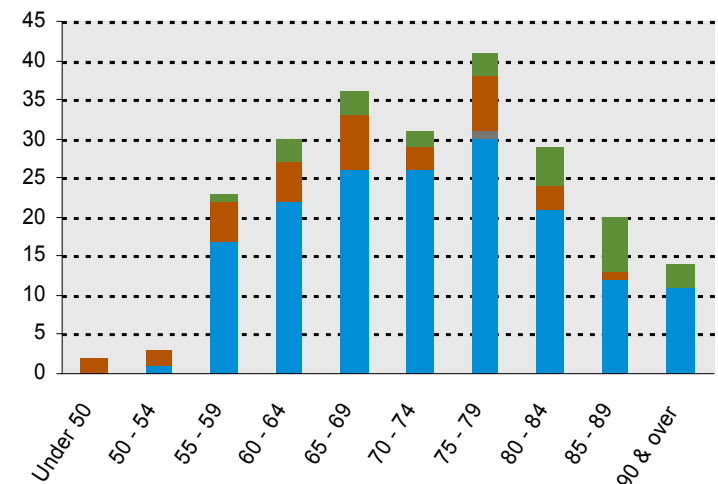
**CHART 4**

**Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2003**



**CHART 5**

**Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2003**



## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

### B. FINANCIAL INFORMATION

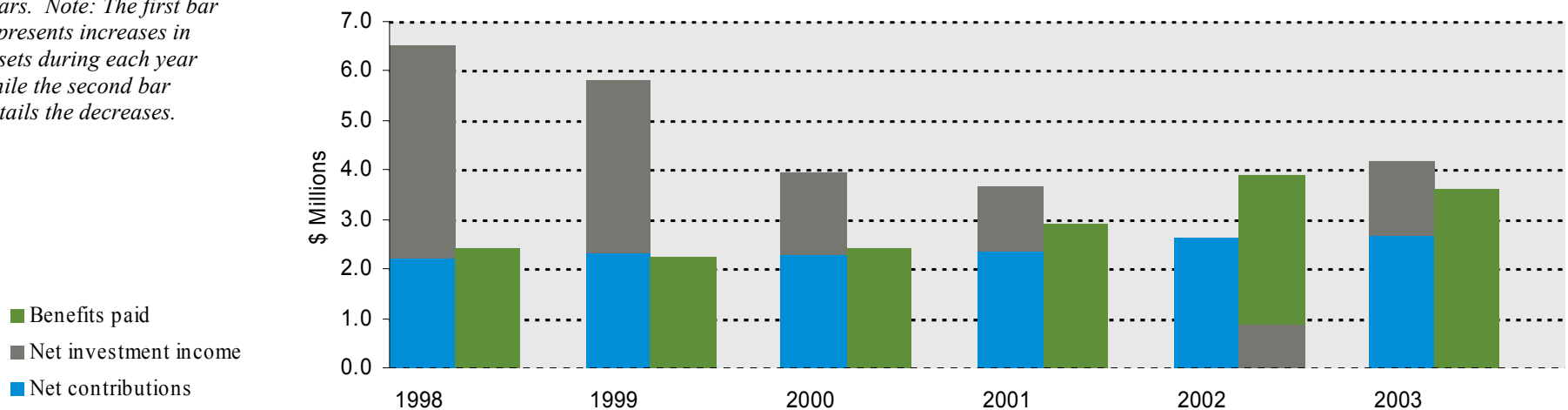
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

*The chart depicts the components of changes in the actuarial value of assets over the last six years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.*

**CHART 6**

**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 1998 – 2003**



## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

### CHART 7

#### Determination of Actuarial Value of Assets

	Year Ended	
	December 31, 2003	December 31, 2002
1. Actuarial value of assets at the beginning of the year	\$28,160,004	\$29,429,260
2. Contributions, less benefit payments and expenses during the year	-959,323	-384,784
3. Average actuarial value: (1) + [50% of (2)]	27,680,343	29,236,868
4. Expected investment income: .08 x (3)	2,214,428	2,338,949
5. Preliminary actuarial value of assets at the end of the year: (1) + (2) + (4)	29,415,109	31,383,425
6. Market value of assets at the end of the year	25,948,723	23,466,670
7. Adjustment toward market value: 20% of [(6) - (5)]	-693,277	-1,583,351
8. Adjustment to be within 20% corridor	0	-1,640,070
9. Final actuarial value of assets: (5) + (7) + (8)	<u>\$28,721,832</u>	<u>\$28,160,004</u>
10. Actuarial value as a percentage of market value: (9) ÷ (6)	110.7%	120.0%

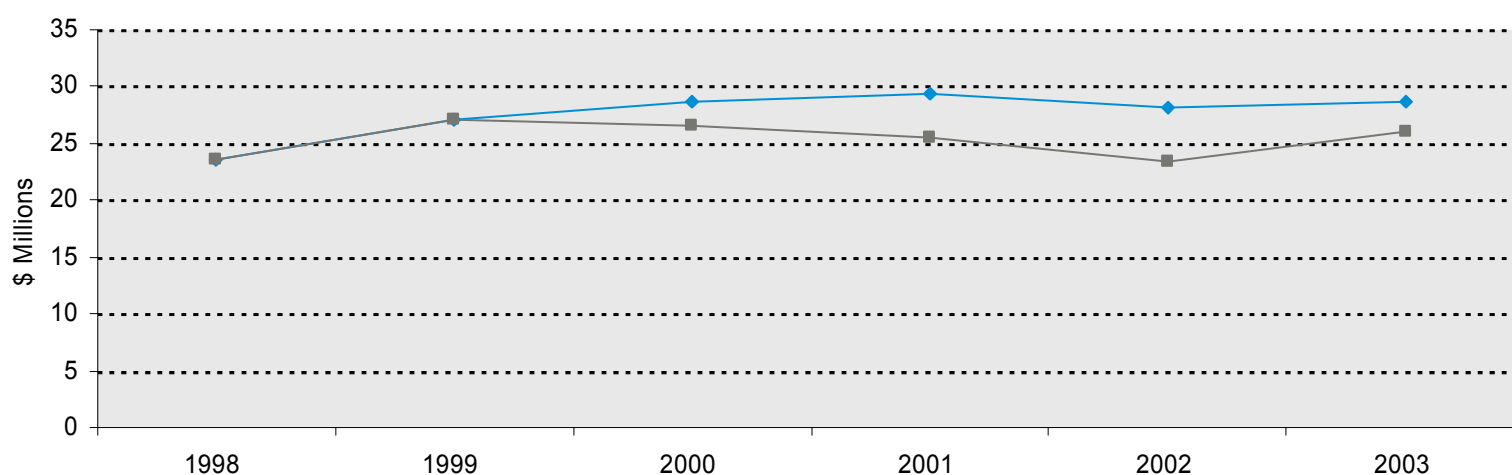
## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

Both the actuarial value and market value of assets are representations of the Swampscott Contributory Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Swampscott Contributory Retirement System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*This chart shows the change in the actuarial value of assets versus the market value over the past six years. Market value of assets equal to actuarial value of assets prior to 2000.*

**CHART 8**

**Actuarial Value of Assets vs. Market Value of Assets as of December 31, 1998 – 2003**



## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

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### C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss over the past two years was (\$5,153,423). A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience over the past two years.*

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### CHART 9

#### Actuarial Experience for Two-Year Period Ended December 31, 2003

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1. Net loss from investments*	-\$4,174,571
2. Net gain from administrative expenses	52,670
3. Net loss from other experience**	<u>-1,031,522</u>
4. Net experience loss: (1) + (2) + (3)	<u>-\$5,153,423</u>

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\* Details in Chart 10

\*\* Details in Chart 13

## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

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### Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Swampscott Contributory Retirement System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.00%. The actual rate of return on an actuarial basis for the 2003 plan year was 5.50% and (3.03%) for the 2002 year.

Since the actual return for the last two years was less than the assumed return, the Swampscott Contributory Retirement System experienced an actuarial loss during the two-year period ending December 31, 2003 with regard to its investments.

*This chart shows the gain/(loss) due to investment experience.*

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### CHART 10

#### Actuarial Value Investment Experience

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	Year Ended	
	December 31, 2003	December 31, 2002
1. Actual return	\$1,521,151	-\$884,472
2. Average value of assets	27,680,343	29,236,868
3. Actual rate of return: (1) ÷ (2)	5.50%	-3.03%
4. Assumed rate of return	8.00%	8.00%
5. Expected return: (2) x (4)	\$2,214,428	\$2,338,949
6. Actuarial gain/(loss): (1) – (5)	<u>-\$693,277</u>	<u>-\$3,223,421</u>

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## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last six years, including the five-year average.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.00%.

### CHART 11

#### Investment Return – Actuarial Value vs. Market Value: 1998 - 2003

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
1998	\$4,297,495	22.13	\$4,297,495	22.13
1999	3,490,976	14.77	3,490,976	14.77
2000	1,642,469	6.06	-455,416	-1.68
2001	1,304,282	4.59	-467,165	-1.78
2002	-884,472	-3.03	-1,708,473	-6.73
2003	<u>1,521,151</u>	5.50	<u>3,441,376</u>	14.97
Total	\$11,371,901		\$8,598,793	
	Five-year average return	5.20%		3.43%

*Note: Each year's yield is weighted by the average asset value in that year.*

## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

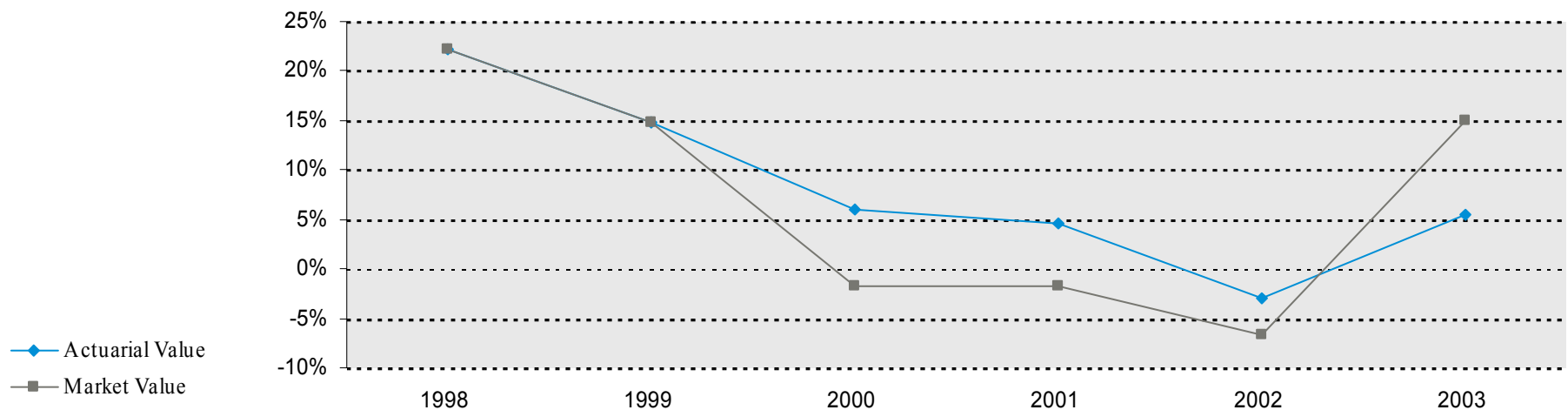
### Administrative Expenses

Administrative expenses for the years ended December 31, 2003 and 2002 were \$142,542 and \$135,889, respectively, compared to the assumption of \$160,000 in 2002 and \$167,200 in 2003. This resulted in a gain of \$52,670 for the two-year period, including an adjustment for interest. The administrative expense assumption for 2004 is \$160,000.

*This chart illustrates how this leveling effect has actually worked over the years 1998 - 2003 .*

**CHART 12**

**Market and Actuarial Rates of Return for Years Ended December 31, 1998 - 2003**





## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

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### Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),

- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the two-year period ending December 31, 2003 amounted to (\$1,031,522) which is 2.0% of the actuarial accrued liability. Detail is shown in the chart below.

*The chart shows elements of the experience gain/(loss) for the most recent years.*

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### CHART 13

#### Experience Due to Changes in Demographics for Two-Year Period Ended December 31, 2003

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1. Salary increases more than expected	-\$285,476
2. 2002 ERI	-1,173,704
3. 2003 ERI	-332,200
4. Miscellaneous gain	<u>759,858</u>
5. Net gain/(loss)	-\$1,031,522

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## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

### D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The preliminary recommended contribution for fiscal 2005 of \$2,420,098 amortizes the 2002 ERI in level payments over 15 years and the remaining unfunded liability over 24 years in increasing (4.50% per year) payments. The first payment on the 2003 ERI is in fiscal 2006. Under this schedule, the System will be fully funded as of June 30, 2028. The fiscal 2005 appropriation has been set to the

previously budgeted amount of \$2,347,756. Therefore, the impact of this valuation will first be reflected in the fiscal 2006 appropriation of \$2,561,571.

The prior funding schedule fully funded the System by June 30, 2026.

Exhibit G in Section 3 shows the recommended contribution through fiscal 2028 based on this funding schedule.

*The chart compares this valuation's recommended contribution with the prior valuation.*

### CHART 14 Recommended Contribution

	Year Beginning January 1			
	2004		2002	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$1,477,589	16.34%	\$1,359,316	16.30%
2. Administrative expenses	160,000	1.77%	160,000	1.92%
3. Expected employee contributions	<u>-767,266</u>	<u>-8.48%</u>	<u>-649,621</u>	<u>-7.79%</u>
4. Employer normal cost: (1) + (2) + (3)	\$870,323	9.62%	\$869,695	10.43%
5. Actuarial accrued liability	52,826,739		47,842,001	
6. Actuarial value of assets	<u>28,721,832</u>		<u>29,429,260</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$24,104,907		\$18,412,741	
8. Employer normal cost projected to July 1, 2004 and 2002	889,690	9.62%	889,048	10.43%
9. Projected unfunded actuarial accrued liability	25,050,554		19,135,082	
10. Payment on projected unfunded actuarial accrued liability	1,530,408	17.46%	1,134,803	13.31%
11. Preliminary recommended contribution: (8) + (10)*	<u>\$2,420,098</u>	<u>26.18%</u>	<u>\$2,023,851</u>	<u>23.75%</u>
12. Budgeted appropriation	<u>\$2,347,756</u>	<u>25.39%</u>	<u>\$2,022,976</u>	<u>23.74%</u>
13. Projected payroll	\$9,245,588		\$8,522,906	

\*Recommended contributions are assumed to be paid on July 1.

## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

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### Reconciliation of Recommended Contribution

The chart below details the changes in the preliminary recommended contribution from the prior valuation to the current year's valuation.

*The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.*

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#### CHART 15

#### Reconciliation of Recommended Contribution from July 1, 2002 to July 1, 2004

<b>Preliminary Recommended Contribution as of July 1, 2002</b>	<b>\$2,023,851</b>
Expected increase	\$186,305
Effect of investment loss	272,700
Effect of 2002 ERI	137,600
Effect of change in funding schedule	-83,450
Effect of net other changes	<u>-116,908</u>
<b>Total change</b>	<b><u>\$396,247</u></b>
<b>Preliminary Recommended Contribution as of July 1, 2004</b>	<b>\$2,420,098</b>

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## SECTION 2: Valuation Results for the Swampscott Contributory Retirement System

### E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded on an actuarially sound basis and in accordance with the GASB funding requirements. Chart 16 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

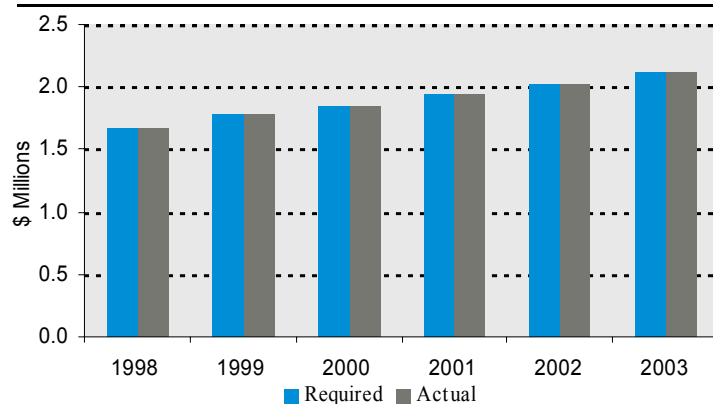
actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

Although GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 17 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

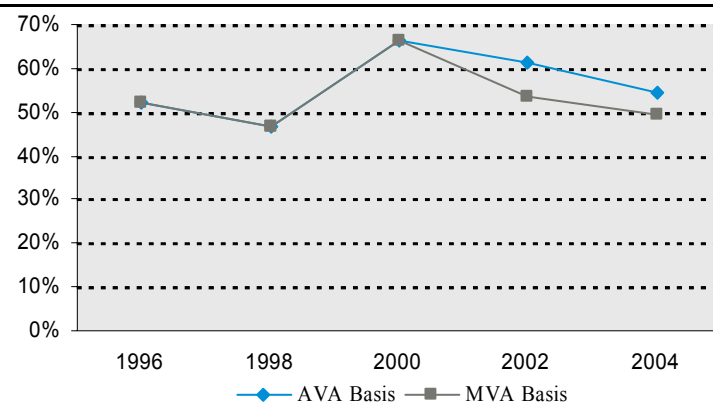
The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

*These graphs show key GASB factors.*

**CHART 16**  
**Required Versus Actual Contributions**



**CHART 17**  
**Funded Ratio**



**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System**

**EXHIBIT A**

**Table of Plan Coverage**

	Year Ended December 31		Change From Prior Year
Category	2003	2001	
Active participants in valuation:			
Number	263	267	-1.5%
Average age	43.1	45.1	N/A
Average service	9.2	11.0	N/A
Total payroll	\$8,587,764	\$7,924,442	8.4%
Average payroll	32,653	29,680	10.0%
Account balances	5,955,630	6,288,605	-5.3%
Inactive participants with a vested right to a return of their employee contributions or a deferred or immediate benefit			
	206	172	19.8%
Retired participants:			
Number in pay status	166	142	16.9%
Average age	72.7	73.6	N/A
Average monthly benefit	\$1,327	\$1,050	26.4%
Disabled participants:			
Number in pay status	36	36	0.0%
Average age	67.1	65.4	N/A
Average monthly benefit	\$1,705	\$1,648	3.5%
Beneficiaries in pay status	27	33	-18.2%

**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System**

**EXHIBIT B**

**Participants in Active Service as of December 31, 2003  
By Age, Years of Service, and Average Payroll**

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	17	17	--	--	--	--	--	--	--	--
	\$13,588	\$13,588	--	--	--	--	--	--	--	--
25 - 29	29	27	2	--	--	--	--	--	--	--
	\$26,107	\$24,626	\$46,100	--	--	--	--	--	--	--
30 - 34	25	16	7	1	1	--	--	--	--	--
	\$31,865	\$25,994	\$49,513	\$14,140	\$19,983	--	--	--	--	--
35 - 39	30	14	3	11	2	--	--	--	--	--
	\$37,195	\$26,131	\$33,468	\$50,606	\$46,482	--	--	--	--	--
40 - 44	43	23	9	2	7	2	--	--	--	--
	\$30,716	\$22,611	\$27,655	\$41,961	\$53,095	\$48,120	--	--	--	--
45 - 49	51	15	10	8	7	7	4	--	--	--
	\$39,015	\$23,697	\$31,162	\$40,907	\$43,805	\$66,035	\$56,642	--	--	--
50 - 54	21	8	1	5	5	--	2	--	--	--
	\$32,485	\$33,988	\$21,398	\$25,471	\$37,095	--	\$38,027	--	--	--
55 - 59	31	3	4	7	7	2	4	4	--	--
	\$38,547	\$29,781	\$30,725	\$29,460	\$35,311	\$50,042	\$49,877	\$57,434	--	--
60 - 64	11	2	2	--	1	1	--	3	1	1
	\$38,573	\$15,565	\$36,503	--	\$33,885	\$31,038	--	\$52,250	\$37,825	\$60,670
65 - 69	2	--	--	1	--	1	--	--	--	--
	\$10,054	--	--	\$13,581	--	\$6,527	--	--	--	--
70 & over	3	--	--	--	--	1	--	1	1	--
	\$18,359	--	--	--	--	\$23,514	--	\$6,902	\$24,662	--
Total	263	125	38	35	30	14	10	8	2	1
	\$32,653	\$23,564	\$34,658	\$37,975	\$41,926	\$51,403	\$50,213	\$49,174	\$31,244	\$60,670

**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System**

**EXHIBIT C**

**Summary Statement of Income and Expenses on an Actuarial Value Basis**

	<b>Year Ended December 31, 2003</b>	<b>Year Ended December 31, 2002</b>
<b>Contribution income:</b>		
Employer contributions	\$2,114,983	\$2,022,976
Employee contributions	691,180	735,223
Less administrative expenses	<u>-142,542</u>	<u>-135,889</u>
Net contribution income	\$2,663,621	\$2,622,310
<b>Investment income:</b>		
Interest, dividends and other income	\$3,592,943	-\$1,534,658
Adjustment toward market value	-1,920,225	824,001
Less investment fees	<u>-151,567</u>	<u>-173,815</u>
Net investment income	<u>1,521,151</u>	<u>-884,472</u>
<b>Total income available for benefits</b>	<b>\$4,184,772</b>	<b>\$1,737,839</b>
<b>Less benefit payments:</b>		
Pensions and annuities	-\$3,462,581	-\$2,863,448
Net 3(8)c reimbursements	-32,569	-48,002
Refunds to members	<u>-127,794</u>	<u>-95,646</u>
Net benefit payments	-\$3,622,944	-\$3,007,094
<b>Change in reserve for future benefits</b>	<b>\$561,828</b>	<b>-\$1,269,256</b>

**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System**

**EXHIBIT D**

**Development of the Fund Through December 31, 2003**

<b>Year Ended December 31</b>	<b>Employer Contributions</b>	<b>Employee Contributions</b>	<b>Net Investment Return*</b>	<b>Administrative Expenses</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
1998	\$1,664,516	\$620,318	\$4,297,495	\$76,345	\$2,434,294	\$23,606,411
1999	1,772,327	624,534	3,490,976	75,171	2,268,512	27,150,564
2000	1,845,975	538,301	1,642,469	101,043	2,410,862	28,665,403
2001	1,932,401	596,448	1,304,282	162,353	2,906,921	29,429,260
2002	2,022,976	735,223	-884,472	135,889	3,007,094	28,160,004
2003	2,114,983	691,180	1,521,151	142,542	3,622,944	28,721,832

*\* Net of investment fees*



**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System****EXHIBIT E****Development of Unfunded Actuarial Accrued Liability**

	Year Ended	
	December 31, 2003	December 31, 2002
1. Unfunded actuarial accrued liability at beginning of year	\$18,660,217	\$18,412,741
2. Normal cost at beginning of year	1,587,685	1,519,316
3. Total contributions	-2,806,163	-2,758,199
4. Interest		
(a) For whole year on (1) + (2)	\$1,619,832	\$1,594,565
(b) For half year on (3)	<u>-110,087</u>	<u>-108,205</u>
(c) Total interest	<u>1,509,745</u>	<u>1,486,360</u>
5. Expected unfunded/(overfunded) actuarial accrued liability	\$18,951,484	\$18,660,217
6. Unfunded actuarial accrued liability at end of year	24,104,907	--
7. (Gain)/loss for two-year period: (6) – (5)	5,153,423	--

**SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System**

**EXHIBIT F**

**Table of Amortization Bases as of July 1, 2004**

Type	Annual Payment	Years Remaining	Outstanding Balance
2002 ERI	\$137,600	15	\$1,219,750
2003 ERI	- -	15	345,232
Remaining liability	<u>1,392,808</u>	24	<u>23,485,572</u>
Total	\$1,530,408		\$25,050,554

*Notes: ERI payments are level amounts; payment on remaining liability increases 4.50% per year.*

*2003 ERI payments begin in fiscal 2006.*

*Does not reflect adjustment to set fiscal 2005 appropriation to budgeted amount.*

*Refer to Exhibit G for information on payment in fiscal year 2006 and later.*

### SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System

#### EXHIBIT G Funding Schedule

(1) Fiscal year ended June 30	(2) Employer normal cost	(3) Amortization of 2002 ERI	(4) Amortization of 2003 ERI	(5) Amortization of remaining unfunded liability	(6) Total plan cost: (2) + (3) + (4) + (5)	(7) Total UAL
2005	\$889,690	\$137,600	-	\$1,320,466	\$2,347,756	\$25,050,554
2006	929,726	131,261	\$40,333	1,460,251	2,561,571	25,479,887
2007	971,564	131,261	40,333	1,525,962	2,669,120	25,755,885
2008	1,015,284	131,261	40,333	1,594,630	2,781,508	25,982,996
2009	1,060,972	131,261	40,333	1,666,388	2,898,954	26,154,114
2010	1,108,716	131,261	40,333	1,741,375	3,021,685	26,261,422
2011	1,158,608	131,261	40,333	1,819,737	3,149,939	26,296,329
2012	1,210,745	131,261	40,333	1,901,625	3,283,964	26,249,398
2013	1,265,229	131,261	40,333	1,987,198	3,424,021	26,110,274
2014	1,322,164	131,261	40,333	2,076,622	3,570,380	25,867,600
2015	1,381,661	131,261	40,333	2,170,070	3,723,325	25,508,935
2016	1,443,836	131,261	40,333	2,267,723	3,883,153	25,020,652
2017	1,508,809	131,261	40,333	2,369,771	4,050,174	24,387,841
2018	1,576,705	131,261	40,333	2,476,411	4,224,710	23,594,195
2019	1,647,657	131,261	40,333	2,587,849	4,407,100	22,621,885
2020	1,721,802	-	40,333	2,704,302	4,466,437	21,451,425
2021	1,799,283	-	-	2,825,996	4,625,279	20,203,327
2022	1,880,251	-	-	2,953,166	4,833,417	18,767,517
2023	1,964,862	-	-	3,086,058	5,050,920	17,079,499
2024	2,053,281	-	-	3,224,931	5,278,212	15,112,916
2025	2,145,679	-	-	3,370,053	5,515,732	12,839,024
2026	2,242,235	-	-	3,521,705	5,763,940	10,226,489
2027	2,343,136	-	-	3,680,182	6,023,318	7,241,167
2028	2,448,577	-	-	3,845,790	6,294,367	3,845,864

Notes: Recommended contributions are assumed to be paid on July 1.  
(2) and (5) increase at 4.50% per year.  
Assumes contribution of budgeted amount for fiscal year 2005.

### SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System

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#### EXHIBIT H

#### Definitions of Pension Terms

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial  
Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial Accrued Liability  
For Actives:**

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

**Actuarial Accrued Liability  
For Pensioners:**

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded Actuarial Accrued  
Liability:**

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

### SECTION 3: Supplemental Information for the Swampscott Contributory Retirement System

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#### **Amortization of the Unfunded**

**Actuarial Accrued Liability:** Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

#### **Investment Return:**

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

### EXHIBIT I

#### Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 27 beneficiaries in pay status)	229
2. Participants active during the year ended December 31, 2003 with total accumulated contributions of \$5,955,630 and projected payroll of \$9,044,330	263
3. Inactive participants with a vested right to a return of their employee contributions or a deferred or immediate benefit as of December 31, 2003	206

The actuarial factors as of the valuation date are as follows:

1. Normal cost, including administrative expenses	\$1,637,589
2. Expected employee contributions	-767,266
3. Employer normal cost: (1) + (2)	870,323
4. Actuarial accrued liability	52,826,739
Retired participants and beneficiaries	\$33,217,771
Active participants	19,241,820
Inactive participants with a vested right to a return of their employee contributions or a deferred or immediate benefit	367,148
5. Actuarial value of assets (\$25,948,723 at market value)	28,721,832
6. Unfunded actuarial accrued liability: (4) – (5)	24,104,907

The determination of the recommended contribution is as follows:

1. Employer normal cost projected to July 1, 2004	\$889,690
2. Projected unfunded actuarial accrued liability	25,050,554
3. Payment on projected unfunded actuarial accrued liability	1,530,408
4. Total preliminary recommended contribution: (1) + (3)	<u>\$2,420,098</u>
5. Budgeted appropriation	<u>\$2,347,756</u>
6. Projected payroll	\$9,245,588

Note: Recommended contributions are assumed to be paid on July 1.

**SECTION 4: Reporting Information for the Swampscott Contributory Retirement System**

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**EXHIBIT II**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

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<b>Plan Year Ended December 31</b>	<b>Annual Required Contributions</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
1998	\$1,664,516	\$1,664,516	100.0%
1999	1,772,327	1,772,327	100.0%
2000	1,845,975	1,845,975	100.0%
2001	1,932,401	1,932,401	100.0%
2002	2,022,976	2,022,976	100.0%
2003	2,114,983	2,114,983	100.0%

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**SECTION 4: Reporting Information for the Swampscott Contributory Retirement System****EXHIBIT III****Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b) - (a) / (c)]</b>
01/01/1996	\$15,208,683	\$29,272,257	\$14,063,574	51.96%	\$6,481,290	216.99%
01/01/1998	16,938,035	36,193,389	19,255,354	46.80%	6,318,850	304.73%
01/01/2000	27,150,564	40,926,782	13,776,218	66.34%	7,516,008	183.29%
01/01/2002	29,429,260	47,842,001	18,412,741	61.51%	8,337,379	220.85%
01/01/2004	28,721,832	52,826,739	24,104,907	54.37%	9,044,330	266.52%



## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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### EXHIBIT IV

#### Supplementary Information Required by the GASB

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<b>Valuation date</b>	January 1, 2004
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Approximate level percent of payroll based on 4.5% increases for non ERI liability and level dollar payments on ERI liability.
<b>Remaining amortization period</b>	24 years remaining as of July 1, 2004, except 15 years remaining as of July 1, 2004 on the 2002 ERI and 15 years remaining as of July 1, 2005 on the 2003 ERI.
<b>Asset valuation method</b>	20% smoothing of investment returns greater (less) than expected
<b>Actuarial assumptions:</b>	
Investment rate of return	8.00%
Projected salary increases	5.50%
Cost of living adjustments	3.00% of first \$12,000 of retirement income
<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	229
Terminated participants entitled to, but not yet receiving benefits	206
Active participants	<u>263</u>
Total	698

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## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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### EXHIBIT V

#### Actuarial Assumptions and Actuarial Cost Method

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##### Mortality rates:

<i>Healthy:</i>	1983 Group Annuity Mortality Table
<i>Disabled:</i>	1983 Group Annuity Mortality Table set forward 10 years

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##### Termination rates before retirement:

Age	Groups 1 and 2 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.04	0.02	0.06	7.94
25	0.05	0.03	0.09	7.72
30	0.06	0.03	0.11	7.22
35	0.09	0.05	0.15	6.28
40	0.12	0.07	0.22	5.15
45	0.22	0.10	0.36	3.98
50	0.39	0.16	0.61	2.56
55	0.61	0.25	1.01	0.94
60	0.92	0.42	1.63	- -

Notes: 55% of the disability rates shown represent accidental disability.  
40% of the accidental disabilities will die from the same cause as the disability.  
55% of the death rates shown represent accidental death

## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

Age	Group 4 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.04	0.02	0.12	--
25	0.05	0.03	0.17	--
30	0.06	0.03	0.22	--
35	0.09	0.05	0.29	--
40	0.12	0.07	0.44	--
45	0.22	0.10	0.72	--
50	0.39	0.16	1.21	--
55	0.61	0.25	2.02	--
60	0.92	0.42	3.25	--

Notes: 90% of the disability rates shown represent accidental disability.  
 40% of the accidental disabilities will die from the same cause as the disability.  
 90% of the death rates shown represent accidental death.

### Retirement rates:

Age	Rate per year (%)	
	Groups 1 and 2	Group 4
50	--	10.0
51- 54	--	2.0
55	10.0	25.0
56 – 59	5.0	10.0
60	5.0	25.0
61	5.0	100.0
62	25.0	--
63 – 66	10.0	--
67	100.0	--

### Unknown data for participants:

Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.

#### SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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**2003 Salary:** 2003 salary as provided in the data. For employees with less than 1 year of service, salary estimated by dividing the current year's contributions by the expected contribution rate.

**Service:** Service is elapsed time from "adjusted" date of hire as reported in the data.

**Age of spouse:** Female (or male) spouses 3 years younger (or older) than their spouses.

**Percent married:** 75%

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**Net investment return:** 8.0%, net of investment expenses

**Interest on Employee Contributions:** 3.5%

**Salary increases:**

Age	Present salary as a percent of salary at 65	Annual increase
20	8.99	5.50
25	11.75	5.50
30	15.35	5.50
35	20.06	5.50
40	26.22	5.50
45	34.27	5.50
50	44.79	5.50
55	58.54	5.50
60	76.51	5.50

*Includes allowance for inflation of 4½%.*

**Administrative expenses:** \$160,00 for calendar 2004 and \$167,200 for calendar 2003

**Cost-of-living increases:** 3% annually of the first \$12,000 of retirement income.

#### SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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**Actuarial value of assets:**

A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments). Twenty percent of the difference between the market value of assets and the preliminary actuarial value is added to the preliminary actuarial value. In order that the actuarial value not differ too significantly from the market value of assets, the final actuarial value of assets must be within 20% of the market value of assets. (Previously, market value)

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**Actuarial cost method:**

Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at “Adjusted” Date of Hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

### EXHIBIT VI

#### Summary of Plan Provisions

This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

**Plan Year:** January 1 – December 31

#### Retirement Benefits

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government and is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3 and are not included in this System.)

The annual amount of the retirement allowance is based on the member's final three-year average salary, multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table, based on the age of the member at retirement:

Age Last Birthday at Date of Retirement			
Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

## SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80 percent maximum.

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members of Group 1 or 2 who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the system).

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### Employee Contributions

- Employees hired before January 1, 1975 contribute 5 percent of their salary;
- Employees hired after December 31, 1974 contribute 7 percent;
- Employees hired after January 1, 1984 contribute 8 percent;
- Employees hired after July 1, 1996 contribute 9 percent.

In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

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### Ordinary Disability Benefits

A member who is unable to perform his/her job due to a non-occupational disability will receive a retirement allowance if he has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be

## **SECTION 4: Reporting Information for the Swampscott Contributory Retirement System**

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determined as if the member retired for superannuation at age 55, based on the amount of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his/her own contributions.

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### **Accidental Disability Benefit**

For a job-connected disability the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his/her own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

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### **Death Benefits**

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of his death, a spouse's benefit will be paid the full amount the employee would have received under Option C (previously, two-thirds of the amount). The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$500 per month, and there are additional amounts for surviving children.

If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children. However, in accordance with Section 100 of Chapter 32, the surviving spouse of a police officer, firefighter or corrections officer is killed in the line of duty will be eligible to receive an annual benefit equal to the maximum salary held by the member at the time of death.

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### **"Heart And Lung Law" And Cancer Presumption**

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman or permanent member of a police department is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in



#### SECTION 4: Reporting Information for the Swampscott Contributory Retirement System

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total disability or death to a uniformed fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

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##### **Options**

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at his/her death any of his contributions not expended for annuity payments will be refunded to his/her beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing his/her survivor with two-thirds of the lesser amount. Option C pensioners will have their benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

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##### **Post-Retirement Benefits**

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

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##### **Changes in Plan Provisions:**

There have been no changes in plan provisions since the last valuation.

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